SPECIAL OPERATING CONDITIONS

USE OF No. 167 WHISTLE CONTROLLER

No. 167 Whistle Controller must be used in conjunction with transformers which do not have a built-in whistle controller. When No. 167 controller is used, one of its posts must be connected to the No. 1 clip of the track lockon while the other is connected to the proper transformer binding post.

Types VW and ZW transformers have two built-in whistle controllers. If you wish to supply track voltage to more than two layouts with the same transformer you must use 167 Whistle Controllers for B-U and C-U pairs of transformer terminals.

Because of voltage losses in the controller itself, outfits using No. 167 external whistle controller require a transformer voltage setting from 3 to 4 volts higher than they do ordinarily. This is not due to any defect in the equipment, but to the design of the 167 whistle controller.

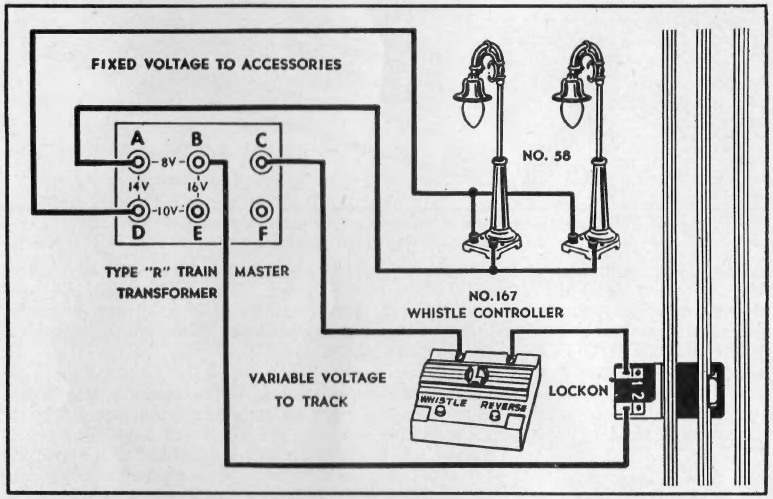

Figure 23—How to Install No. 167 Whistle Controller

D.C. OPERATION

Most Lionel equipment can also be operated on low voltage direct current, which can be obtained either from automobile storage batteries or from 32-volt d.c. generators sometimes used in rural areas where regular electric power is not available. When direct current is used trains require less voltage than when operated on regular alternating current obtained from a toy transformer. Two storage batteries in series generally furnish enough voltage, which is varied for controlling train speed by means of a rheostat.

If a 32-volt source is used the voltage must be reduced to approximately 12 volts by means of series resistance or a potentiometer.

As previously stated, Lionel train whistles cannot be controlled but will blow continuously when the train is operated with direct current or with alternating current having a frequency of less than 40 cycles. For further information on low-voltage d.c. operation write to Lionel Engineering Department.

PART TWO

HOW TO OPERATE LIONEL ACCESSORY RAILROAD EQUIPMENT

ABOUT LIONEL TRACK

LIONEL TRACK SIZES

Lionel track is made in two different sizes: "O" and the lighter "027". The quickest way to tell the difference between them is by the shape of the track ties. (See Figure 24). Although the track "gauge" or the distance between the running rails is the same for both types of tracks—1¼ inches—"O" and "027" track cannot be used for the same layout.

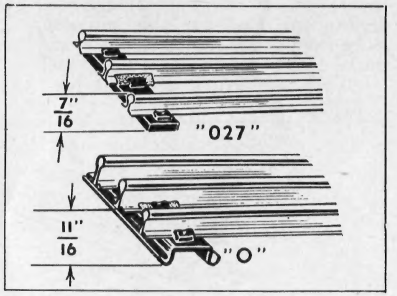

Figure 24—"O" and "027" Track

In addition to the regular length "O" track Lionel makes half-length straight and curved sections, known as ½OS and ½OC, which are useful for many types of layouts. This year Lionel has also made available special wide radius "072" curved track. These No. 760 sections are 14" long with 16 sections making a circle slightly more than 74 inches in diameter. "072" track matches "O" track but not "027". The three types of track are compared in Figure 25.

To aid in automatic signalling and operation of accessories Lionel also makes "O" gauge OSS (straight) and OCS (curved) track sections with one insulated outside rail.

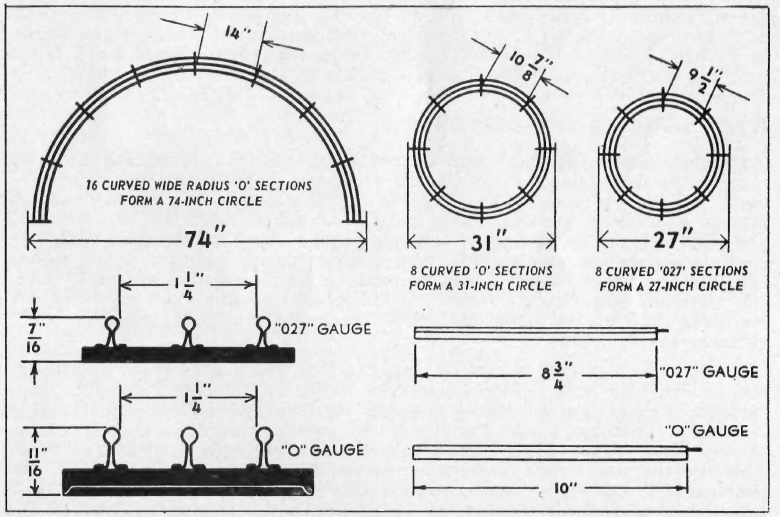

Figure 25—Comparison of Three Types of Lionel Track